WOODMAN, spare that tree.
Touch not a single bough.
In youth it sheltered me,
And I'll protect it now.
'Twas my forefather's hand
That placed it near his cot.
Then, woodman, let it stand.
Thy ax shall harm it not.

It is only within a few years comparatively that there has been any adequate sense of the great questions involved in the rapid deforesting which has been in unchecked operation in the United States. Even now it is mostly among scientific men that the facts have any vivid hold on the mind, but there is beginning to be a widespread awakening. People in general have hitherto not only looked on the forests as lawful plunder, but have attacked these supreme gifts of nature as pirates used to fly the black flag on the ocean, with the most reckless and ruthless spirit of destruction. This waste, too, has gone on for a century in spite of the fact that notes of warning have been constantly sounded. Even as far back as the year 1800 wise men in New England had much to say on the danger of the lavish tree cutting in the northern Atlantic states.

But men are now forced to consider the questions at issue very seriously, because they will not permit themselves to be ignored any longer. It is the alternative of the fabled sphinx, "Solve me this matter rightly or I'll destroy you."

The main interest of the emergency is not that of the commercial supply of lumber, fuel and paper pulp. This aspect is important, but its conditions admit of easy modifications, which can be made to solve themselves. The recuperation of nature from the human drain on her resources is magnificently illustrated in the fertility of tree life. The forests will amply supply all our needs for countless generations if man will bring to the economy of production a tithe of the care and skill which he applies to his orchards and grainfields. The active elements of the forest problem go still deeper to the roots of things and touch all the primary interests of man. Let us, then, glance at these radical facts, which sink the discussion of the fuel, lumber and paper markets into insignificance. Putting aside the utility of forests as the source of raw material for fuel and manufacture, we find the value of woodland fourfold—it creates climatic conditions; it regulates the water supply in springs, brooks and rivers; it is a necessary conservator of good soil conditions, and it is of vital importance in sanitation through its effects in purifying the air.

The modes of forest influence are easily understood, if we trace them step by step. The climate of any region is the result of the temperature and moisture of the air interacting on each other. The temperature is derived, in the main, by radiation from the heated earth. The barrier of a dense forest, of course, lowers the temperature of the soil and of the air above it, and this again lessens evaporation from the surface of the soil. So cooler and moister air is found within and above the forest, and this tends to condense passing clouds, which the hot air of open spaces would check. In this way, too, the woods act like a large sheet of water as an origin of local winds. On the other hand, again, they constitute a mechanical barrier against chilling north and hot southern blasts. The prairie farmer well knows what a windbreak of a few rows of trees will do in adding to the comfort of his homestead and protecting his young orchards.

But the paramount office of the forest is to preserve soil humidity and to store up and feed out equably the earth's water capital. The moss and leaf mold make a vast sponge, taking water from the air and the clouds, and from this reservoir paying regular dividends, in springs, brooks and rivulets, giving up its resources, too, gradually as they are most needed. The earth is always most thirsty and arid where there are the fewest trees. Again, where the headwaters of streams and rivers are denuded of forest, not only is the average level of flowing water lowered, but the country is necessarily made subject to occasional tremendous floods. By this agency man's handiwork is extensively destroyed, and, worst of all, the soil is washed away from the slopes and rich valleys pauperized for years. It is a demonstrable fact that the afforestation of immense tracts in France, Germany and the Tyrol has been of incalculable advantage in lessening such cataclysms of nature and otherwise blessing the labors of the earth tiller. It is not too much to say that the efficient control of the earth's resources—that is to say, civilization itself—depends more largely on a proper proportion of forest to tillable soil than on any other single factor.

As to the sanitary effects of great forest tracts science is constantly eliciting new proofs, which come home to the most skeptical. The activity of every tree in consuming carbonic acid and breathing out oxygen has long been known. The balm of elevated forest atmosphere, especially in regions of pine and spruce, has made such districts natural sanitariums for pulmonary sufferers. So, too, a vast extent of swamp has been cleared of malaria by the generous planting of trees, the webwork of leaf and twig probably serving as a filter in purifying the air of the spores of fungi and bacteria.

It seems to be clear, so great is the importance of the relation of the forest to the open land and so manifold its aspects, that it is one of those problems which the state can no longer leave absolutely to the caprice and selfishness of individuals. The individual is for the most part shortsighted, intent only on immediate utilization for commercial purposes. The lumberman's outlook merely covers the stripping of a piece of woodland for its available timber and moving to the next, leaving jagged eyesores of stumps, saplings and underbrush. This it will take from 30 to 50 years to renew, even if the forest fire does not sweep over it with an awful fury of flames, involving in many instances conflagrations extending hundreds of square miles. Every year reeks with such destruction. Thousands of squatters, too, have been in the habit of clearing lands by fire, destroying thousands of acres to get the use of hundreds for tillage. The breath of fire has done more than the ax to deforest our country. Again, in remote woodland regions, where the difficulty of marketing lumber is great—as, for example, in parts of West Virginia, North Carolina and Tennessee—the ignorant mountaineer will destroy the trees and thousands of acres for their bark, leaving the girdled giants to droop, die and rot. Such are a very few of the salient causes the operation of which is and has been rapidly destroying our forest acreage, and the effects of which, unless some countercheck is devised, will work incredible loss to American civilization and progress.

But the awakening of public opinion, slow as it has been, promises something. It begins to show itself in governmental action. Against the sluggish indifference of such states as New Hampshire, which, in spite of the persistent efforts of the late Austin Corbin and other public spirited men, refused to set apart a forest reservation as an object lesson in the art of forestry and tree culture, we have the examples of New York, with her splendid Adirondack reservation, protecting the sources of the Hudson and of Pennsylvania, which has done something similar in the Alleghany region. While not more than half a dozen states have taken steps directly in this way, the example is contagious and promises to be speedily followed. More important than any state legislation in its effects has been the wise action of congress.

Under the law passed March 3, 1893, 15 forest reservations have been set off, which protect the well heads of the principal rivers between the Mississippi river and the Pacific ocean. Four of these are in California, five in Colorado, one in Oregon, one in Washington, one in Wyoming, one in New Mexico, one in Arizona and one in Alaska. They include a total of 15,000,000 acres out of the 50,000,000 acres of government forest land, ranging from 500 to 6,000 square miles in extent. It is believed, too, that this is only the beginning of governmental effort. It were well, indeed, if its whole 50,000,000 acres were so consecrated to the river gods. These reserves may easily be made object lessons in the art of forestry, showing how the woods, nurtured and harvested with skill, can be made greatly to increase their bounty. The existing forest acreage in our country is 500,000,000 acres. At the current rate of use and with the methods in vogue the annual growth does not supply the demand; the capital stock is constantly impairing. European forest methods would not only meet this impairment, but increase the reserves. It is then of immense importance that government supervision should attach schools of forestry to its great woodland parks and nurseries. Then the knowledge of the true methods of treating the woods would flow down and gradually fertilize the ideas of private owners, just as the springs and rivers protected by those forests flow down and fertilize the meadows.

JOHN GORDON.

Present Status of New Hampshire's Forests.

An observant and enthusiastic lady member of the Pennsylvania Forestry association has written to the editor a personal letter, which we give in part to our readers. It shows how the denudation of the forests of New Hampshire affect one whose yearly visits have made her familiar with what these forests were, while her knowledge of results which are sure to follow prognosticates the future reckoning:

"The fate of New Hampshire seems settled. The forests are mostly gone, all the good timber cut, or soon will be, and the mountains are green only with the young growth of hard wood trees of inferior quality and no size, unfit for much use. When the lands can again be sold at their old prices—before the lumberman bought them at a high figure for the ready money in their forests—the state can afford to buy them to make good driving roads and convert the whole state practically into a summer resort. Judicious cutting would have kept the lumber interest a source of revenue for all time; but, alas, present needs are paramount and the forests are gone. The Pemigewasset, once a river, is now scarcely a brook, and the smaller streams and brooks are absolutely dry. The scenery here is very lovely, although we constantly see the inevitable sawmill and mourn the destruction of all the fine trees so familiar in bygone years."—Exchange.

TO SAVE THE TREES.

Sentiment—pure sentiment—it is true, inspired the first effort to insure the preservation of forest reserves. Napoleon declared, in effect, that sentiment moves the world, and it is unjust to discredit the forestry reform agitation because of its sentimental origin. The bare hint that the sylvan beauties of the Yosemite, the Adirondacks and the Alleghanies might disappear under the destructive hand of vandalism and become only a memory was too startling to pass unheeded. And if those magnificent forest domains can be set apart as parks forever by the will of the people other reservations equal in importance, if not equal in picturesqueness, may likewise be reserved.

Bills for the rescue of public forest lands from spoliation and for the proper care of the reservations already set apart have thus far failed in congress, but the idea grows in favor the more it is agitated, and it seems to be only a question of time, and a very short time at that, when a law embodying the main features of the McRae bill will be enacted. The McRae measure, which passed the house last June, is a plan to put the national forest reserves under regulation management and make them self supporting.

The necessity for state action, both separately and in federation, is clearly set forth in the report for 1895 of the fire warden of Minnesota.

The report closes with a statement of the utility of the forests and argument for their preservation:

The Minnesota forests are a great natural reservoir of moisture feeding hundreds of streams, which fertilize the soil and turn the machinery of manufactures. They afford an important industry and home market for agricultural supplies. The pine forests should also be valuable as health resorts, for it has been conclusively shown by scientific observations that forest air is much richer in ozone than the air of open countries. The celebrated Swedish iron is produced by charcoal instead of mineral coal, and it would seem that the conversion of Minnesota ore into iron by charcoal should be encouraged by the state rather than have it all shipped away in crude condition. This, while creating a new industry, would furnish a new incentive for perpetuating the forests. No abatement of the seemingly ruthless consumption of pine can at present be expected, for great companies have their capital all embarked in the business and have built railroads specially for lumbering. They cannot now stop without financial failure, and if we are to have permanent forests it must be the state or the United States that will conserve them.

A change of terms to suit the varied natural resources of the several localities blessed with rich forest lands would make the Minnesota plea applicable to nearly every state in the nation. In its broader aspects the question is stated in a recent number of Garden and Forest. An editorial treating upon forest and flood says:

It is unpleasant to be constantly sounding alarms and predicting calamities. No gift of prophecy is needed to foretell the ruin which will follow if the devastation of the forests of the Appalachian region from Quebec to Alabama goes on for the next 25 years as it has done. And who can estimate the desolation which will ensue if the floods are let loose from the still loftier ranges which feed the Columbia, the Sacramento and the San Joaquin, or who can imagine the extent of the inland sea that will roll over the Mississippi valley when the water barriers are removed from the eastern slopes of the great continental divide and the sources of that immense water system in the central north? Common prudence ought to arouse the legislatures of the various states and of the nation to face this problem now, which is of more vital importance to the life of the republic than any question of tariff or of currency.

Many of the states are already aroused to the crisis. Minnesota not only looks to the preservation of her vast forest treasures, but she has among her statutes a forestry act to encourage tree planting. Her forests are under the control of a forest commissioner, and the forest fire law now in operation in that state is said to be the most complete ever enacted.

New York established a forestry commission some years ago. So far its labors have been confined to the state holdings in the Adirondack regions. Less than a fourth of the 2,800,000 acres constituting Adirondack park be-

CHARLES SPRAGUE SARGENT.

longs to the state. Doubtless the present legislature will appropriate a large sum for the purchase of additional lands within the park. Governor Black, in his inaugural message, urged immediate legislation in language which belongs to the consideration of great public necessities. He said:

A subject of such magnitude should not be postponed or conducted with the halting method which is too apt to distinguish public enterprises in which large appropriations afford convenient resting places in which office-holders may grow old. Not long ago the state appropriated $1,000,000 to preserve the beauties of Niagara falls. That subject is without significance compared to the Adirondack forests. Every consideration of health, pleasure, economy and safety urges the speedy consideration of this subject, and such consideration should include appropriations adequate to ascertain the nature of the titles adverse to the state and to recover where the titles are insufficient and to purchase where they are valid. Any other course would be false and unwise economy.

Pennsylvania and New Jersey have active forestry associations laboring to disseminate information in regard to the necessity and methods of forest culture and preservation and to secure the enactment of proper forest protective laws, both state and national.

The first scientific investigation of the forestry question by a board of competent men having national indorsement has just been completed, and the report will soon be laid before the secretary of the interior. This investigation was made at the request of Secretary Smith, and congress appropriated $25,000 for the expenses of the board. The members, seven in number, serve without pay. They are experts, and their recommendations should have weight in legislative bodies and among the people. At the head of this national forestry commission stands Professor Charles S. Sargent, director of the arboretum and of the school of arboriculture at Harvard. Professor Walcott Gibbs, president of the National Academy of Sciences, is ex officio a member. Others on the board are Alexander Agassiz, Professor W. H. Brewer of Yale, General Henry L. Abbott, U. S. A., retired; Arnold Hague of the geological survey and Gifford Pinchott, practical forester.

The commission was asked by the interior department to recommend a plan for the general treatment of the forest covered regions of the public domain, and its report will consider:

First.—The question of the ultimate ownership of the forests now belonging to the government—that is, what portion of the forest on the public domain shall be allowed to pass, either in part or entirely, from government control into private hands.

Second.—How shall the government forests be administered so that the inhabitants of adjacent regions may draw their necessary forest supplies from them without affecting their permanency.

Third.—What provision is possible and necessary to secure for the government a continuous, intelligent and honest management of the forests of the public domain, including those in the reservations already made, or which may be made in the future.

When the information gathered by these men of science is before the people and at the command of the lawmakers, there will remain no bar to wise and speedy action in the premises, unless it be indifference, and that indifference, it is to be hoped, will give way to active sympathy and enthusiasm. Since government authority is needed to preserve the forest lands, the power to exert it cannot be given too soon.

G. K. LENNOX.

Probate Order.

STATE OF MICHIGAN, } ss
COUNTY OF SHIAWASSEE. }

At a session of the Probate Court for said county, held at the Probate office, in the city of Corunna, on Monday, the 15th day of March in the year of our Lord one thousand eight hundred and ninety-seven.

Present, Matthew Bush, Judge of Probate.

In the matter of the estate of Malcom D. Bailey, deceased.

On reading and filing the petition duly verified of William E. Collins, as executor, praying for the appointment of commissioners on claims for said estate.

Thereupon it is ordered, that Monday, the 12th day of April next, at ten o'clock in the forenoon, be assigned for the hearing of said petition, and that the heirs at law of said deceased, and all other persons interested in said estate, are required to appear at a session of said court, then to be holden at the probate office in the city of Corunna, in said county, and show cause, if any there be, why the prayer of the petitioner should not be granted.

And it is further ordered, that said petitioner give notice to the persons interested in said estate, of the pendancy of said account, and the hearing thereof, by causing a copy of this order to be published in THE OWOSSO TIMES, a newspaper printed and circulated in said county, for three successive weeks previous to said day of hearing.

MATTHEW BUSH, Judge of Probate.

BY KATHERINE E. KELSEY, Probate Register.